

What is claimed is:

1. A magnetoresistive device comprising:

a magnetoresistive element having two surfaces that face toward
opposite directions and two side portions that connect the two surfaces to
5 each other;

two bias field applying layers that are located adjacent to the side
portions of the magnetoresistive element and apply a bias magnetic field to
the magnetoresistive element; and

two electrode layers that feed a current used for signal detection to the
10 magnetoresistive element, each of the electrode layers being adjacent to one
of surfaces of each of the bias field applying layers; wherein

the two bias field applying layers are located off one of the surfaces of
the magnetoresistive element; and

at least one of the electrode layers overlaps the one of the surfaces of the
15 magnetoresistive element, and a total length of regions of the two electrode
layers that are laid over the one of the surfaces of the magnetoresistive
element is smaller than $0.3\ \mu\text{m}$.

2. The magnetoresistive device according to claim 1 wherein both of the
20 two electrode layers overlap the one of the surfaces of the magnetoresistive
element, and a length of the region of each of the two electrode layers that is
laid over the one of the surfaces of the magnetoresistive element is smaller
than $0.15\ \mu\text{m}$.

25 3. The magnetoresistive device according to claim 1 wherein a space
between the two electrode layers is equal to or smaller than approximately

0.6 μm .

4. A method of manufacturing a magnetoresistive device comprising:
a magnetoresistive element having two surfaces that face toward
5 opposite directions and two side portions that connect the two surfaces to
each other;

two bias field applying layers that are located adjacent to the side
portions of the magnetoresistive element and apply a bias magnetic field to
the magnetoresistive element; and

10 two electrode layers that feed a current used for signal detection to the
magnetoresistive element, each of the electrode layers being adjacent to one
of surfaces of each of the bias field applying layers; the method including the
steps of:

forming the magnetoresistive element;
15 forming the bias field applying layers; and
forming the electrode layers; wherein:

the two bias field applying layers are located off one of the surfaces of
the magnetoresistive element; and

at least one of the electrode layers overlaps the one of the surfaces of the
20 magnetoresistive element, and a total length of regions of the two electrode
layers that are laid over the one of the surfaces of the magnetoresistive
element is smaller than 0.3 μm .

5. The method according to claim 4 wherein both of the two electrode
25 layers overlap the one of the surfaces of the magnetoresistive element, and a
length of the region of each of the two electrode layers that is laid over the

one of the surfaces of the magnetoresistive element is smaller than 0.15 μm .

6. The method according to claim 4 wherein a space between the two electrode layers is equal to or smaller than approximately 0.6 μm .

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7. A thin-film magnetic head comprising:

a magnetoresistive element having two surfaces that face toward opposite directions and two side portions that connect the two surfaces to each other;

10 two bias field applying layers that are located adjacent to the side portions of the magnetoresistive element and apply a bias magnetic field to the magnetoresistive element; and

two electrode layers that feed a current used for signal detection to the magnetoresistive element, each of the electrode layers being adjacent to one
15 of surfaces of each of the bias field applying layers; wherein

the two bias field applying layers are located off one of the surfaces of the magnetoresistive element; and

at least one of the electrode layers overlaps the one of the surfaces of the magnetoresistive element, and a total length of regions of the two electrode
20 layers that are laid over the one of the surfaces of the magnetoresistive element is smaller than 0.3 μm .

8. The thin-film magnetic head according to claim 7 wherein both of the two electrode layers overlap the one of the surfaces of the magnetoresistive
25 element, and a length of the region of each of the two electrode layers that is laid over the one of the surfaces of the magnetoresistive element is smaller

than 0.15 μm .

9. The thin-film magnetic head according to claim 7 wherein a space between the two electrode layers is equal to or smaller than approximately
5 0.6 μm .

10. A method of manufacturing a thin-film magnetic head comprising:
a magnetoresistive element having two surfaces that face toward
opposite directions and two side portions that connect the two surfaces to
each other;

two bias field applying layers that are located adjacent to the side
portions of the magnetoresistive element and apply a bias magnetic field to
the magnetoresistive element; and

15 two electrode layers that feed a current used for signal detection to the
magnetoresistive element, each of the electrode layers being adjacent to one
of surfaces of each of the bias field applying layers; the method including the
steps of:

forming the magnetoresistive element;

forming the bias field applying layers; and

20 forming the electrode layers; wherein:

the two bias field applying layers are located off one of the surfaces of
the magnetoresistive element; and

at least one of the electrode layers overlaps the one of the surfaces of the
magnetoresistive element, and a total length of regions of the two electrode
25 layers that are laid over the one of the surfaces of the magnetoresistive
element is smaller than 0.3 μm .

11. The method according to claim 10 wherein both of the two electrode layers overlap the one of the surfaces of the magnetoresistive element, and a length of the region of each of the two electrode layers that is laid over the
5 one of the surfaces of the magnetoresistive element is smaller than $0.15\text{ }\mu\text{m}$.

12. The method according to claim 10 wherein a space between the two electrode layers is equal to or smaller than approximately $0.6\text{ }\mu\text{m}$.